UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,381	08/15/2006	Annaliesa S. Anderson	21490YP	5673

210 7590 01/27/2009

MERCK AND CO., INC
P O BOX 2000
RAHWAY, NJ 07065-0907

EXAMINER	
DEVI, SARVAMANGALA J N	
ART UNIT	**PAPER NUMBER**
1645	
MAIL DATE	**DELIVERY MODE**
01/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,381	ANDERSON ET AL.	
	Examiner	Art Unit	
	S. Devi, Ph.D.	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7 and 19-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7 and 19-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

RESPONSE TO APPLICANTS' AMENDMENT

Applicants' Amendment

1) Acknowledgment is made Applicants' amendment filed 10/16/08 in response to the non-final Office Action mailed 06/12/08.

Status of Claims

2) Claims 1-5, 19 and 20 have been amended via the amendment filed 10/16/08.

New claims 21-32 have been added via the amendment filed 10/16/08.

Claims 8-18 have been canceled via the amendment filed 10/16/08.

Claims 1-7 and 19-32 are pending and are under examination.

Substitute Sequence Listing

3) Acknowledgment is made of Applicants' substitute sequence listing which has been entered on 11/12/0/08.

Prior Citation of References

4) The references cited or used as prior art in support of one or more rejections in the instant Office Action and not included on an attached form PTO-892 or form PTO-1449 have been previously cited and made of record.

Objection(s) Withdrawn

5) The objection to the specification made in paragraph 7 of the Office Action mailed 06/12/08 is withdrawn in light of Applicants' amendment to the specification.

Rejection(s) Withdrawn

6) The rejection of claims 1-7, 19 and 20 made in paragraph 9 of the Office Action mailed 06/12/08 under 35 U.S.C. § 112, first paragraph, as containing inadequate written description, is withdrawn in light of Applicants' amendment to the claims and/or the base claims. A new rejection is set forth below to address the claims as amended. Applicants' arguments have been addressed therein to the extent still applicable.

7) The rejection of claim 1 made in paragraph 11(a) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of

Applicants' amendment to the claim.

8) The rejection of claim 1 made in paragraph 11(b) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

9) The rejection of claims 2-4, 19 and 20 made in paragraph 11(c) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claims.

10) The rejection of claim 5 made in paragraph 11(d) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

11) The rejection of claim 5 made in paragraph 11(e) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is withdrawn in light of Applicants' amendment to the claim.

12) The rejection of claims 2-7, 19 and 20 made in paragraph 11(f) of the Office Action mailed 06/12/08 under 35 U.S.C § 112, second paragraph, as being indefinite, is, withdrawn in light of Applicants' amendment to the base claim.

13) The rejection of claims 1, 2, 4 and 19 made in paragraph 13 of the Office Action mailed 06/12/08 under 35 U.S.C. § 102(b) as being anticipated by Foster *et al.* (WO 2003011899 A2 – Applicants' IDS) ('899), is withdrawn.

14) The rejection of claims 1, 2, 4 and 19 made in paragraph 14 of the Office Action mailed 06/12/08 under 35 U.S.C. § 102(b) as being anticipated by Foster *et al.* (WO 200198499 A1 – Applicants' IDS) ('499), is withdrawn.

15) The rejection of claims 1-3, 19 and 20 made in paragraph 14 of the Office Action mailed 06/12/08 under 35 U.S.C. § 102(b) as being anticipated by Foster *et al.* (WO 2003011899 A2 – Applicants' IDS) ('899), is withdrawn.

15) The rejection of claims 5-7 made in paragraph 14 of the Office Action mailed 06/12/08 under 35 U.S.C. § 102(b) as being unpatentable over Foster *et al.* (WO 2003011899 A2 – Applicants' IDS) ('899) in view of Devi *et al.* (US 6,855,807, of record), is withdrawn.

New Rejection(s) Necessitated by Applicants' Amendment

Rejection(s) under 35 U.S.C. § 112, First Paragraph (Written Description)

16) The following is a quotation of the first paragraph of 35 U.S.C. § 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

17) Claims 1-7 and 19-32 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a written description rejection.

The *Written Description Guidelines* state:

> There is an inverse correlation between the level of predictability in the art and the amount of disclosure necessary to satisfy the written description requirement. For example, if there is a well-established correlation between the structure and function in the art, one skilled in the art will be able to reasonably predict the complete structure of the claimed invention from its function.

In *Enzo Biochem. Inc. v. Gen-Probe Inc.*, 323 F3.d 956, 964, 63 USPQ2d 1609, 1613 (Fed. Cir. 2002), the Federal Circuit adopted a portion of the Guidelines proffered by the United States Patent and Trademark Office (USPTO). The written description requirement can be met by describing the claimed subject matter to a person skilled in the art using sufficiently detailed, relevant identifying characteristics such as functional characteristics, and correlating those functional characteristics with a disclosed structure. See *Enzo Biochem v. Gen-Probe,* 323 F.3d 956, 964, 967, 968 (Fed. Cir. 2002). Sufficient description to show possession of a *genus* may be achieved by means of disclosure of a representative number of polypeptides, defined by amino acid sequences falling within the scope of the genus, or recitation of structural features common to members of the genus, which features constitute a substantial portion of the genus. *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406. Possession may *not* be shown by merely describing how to obtain possession of members of the claimed genus or how to identify their common structural features. See *University of Rochester*, 358 F.3d at 927, 69 USPQ2d at 1895.

Instant claims are not limited to an isolated polypeptide consisting of the amino acid sequence of SEQ ID NO: 1 that provides protective immunity against COL strain of *S. aureus.*

Instead, the claims are drawn to a *vast genus* of isolated polypeptide variants differing in structure from an isolated polypeptide consisting of SEQ ID NO: 1. These polypeptide variants have as many as up to 15 amino acid alterations 'from' any region of SEQ ID NO: 1, or polypeptide variants that are 1% non-identical to SEQ ID NO: 1, each having the ability to provide protective immunity against any *S. aureus*. The polypeptide immunogen claimed in claims 1-7 and 26 is not required to be purified and/or isolated. The protective immunity induced in humans or animals against any strain of *S. aureus* is not excluded from the scope of the claims. The limitation 'patient' in claim 5 encompasses an infant patient and an immunocompromised patient such as a cancer patient, AIDS patient. The limitation 'amino acid alterations' in the claims, encompasses amino acid substitutions, additions, and amino acid deletions. The recited 'amino acid alterations' encompass unidentified alterations 'from SEQ ID NO: 1' at any position of the claimed polypeptide immunogen. The limitation '*S. aureus*' encompasses homologous or heterologous strains of *S. aureus*, coagulase-positive and coagulase-negative *S. aureus*; multiple drug-resistant and methicillin-resistant strains of *S. aureus* (MRSA), various phage types of *S. aureus*, enterotoxigenic and non-enterotoxigenic *S. aureus,* and various other serotypes including non-typeable *S. aureus*. For instance, von Eiff *et al*. (*Diagn. Microbiol. Infect. Dis*. 58: 297-302, 2007, of record) teach the prevalence of clinical isolates of *S. aureus* as various *spa* serotypes and capsular serotypes. See abstract of von Eiff *et al*. von Eiff *et al*. characterize *S. aureus* to be one of the most 'feared' microorganisms because of its ability to cause serious and fatal infections.

In the instant application, Applicants have not shown possession of a representative number of altered polypeptide or polypeptide immunogen species having the recited number of amino acid alterations from SEQ ID NO: 1 wherein the species provide protective immunity against *Staphylococcus aureus,* or a *Staphylococcus aureus* comprising SEQ ID NO: 7. Applicants argue that the skilled artisan reviewing the specification would expect sequences having up to 15 amino acid alterations from SEQ ID NO: 1 to provide protective immunity. Applicants state that the expectation is based on the 'high probabilities' that altering up to 15 of the amino acids within the 260 amino acids provided in SEQ ID NO: 1 will result in a polypeptide retaining the ability to provide protective immunity against *S. aureus*. Applicants submit that polypeptides having a high degree of sequence identity to SEQ ID NO: 1 would be expected to produce a similar immune response as SEQ ID NO: 1 and be effective against strains

of *S. aureus* expressing a closely related sequence. Applicants assert that all that is needed to fulfill the written description requirement is for polypeptide to be expected to provide protective immunity against at least one strain of *S. aureus* such as *S. aureus* COL. Applicants contend that it is expected that a polypeptide of SEQ ID NO: 1 would be useful against more than one strain, and that possession of a polypeptide of SEQ ID NO: 1 providing protective immunity does not require SEQ ID NO: 1 to provide protective immunity against every *S. aureus* strain. Applicants speculate that assuming an epitope size of 6 amino acids, it *unlikely* that altering 15 of 260 amino acids will effect any particular epitope, but fail to provide support or evidence. Applicants further contend that the expectation that a particular sequence 'based on SEQ ID NO: 1' would provide protective immunity increases as the relationship to SEQ ID NO: 1 increases. Applicants allege that the rejection does not take into account the likelihood that any particular alteration made in SEQ ID NO: 1 will not be made to an epitope region or a region involved in conformation of the epitope, such that the polypeptide will no longer be protective. However, the instant specification fails to identify one or more protective epitopes within the unaltered SEQ ID NO: 1 or the altered SEQ ID NO: 1, or one or more conformational regions of a polypeptide immunogen associated with generic protection against any *S. aureus*, or against a *S. aureus* comprising a polypeptide of SEQ ID NO: 7. Furthermore, many claims, as presented currently, do not require the particular number of amino acid alterations to be 'made in SEQ ID NO: 1'. Instead, the claimed polypeptide immunogen consists of, consists essentially of, or comprises an amino acid sequence with up to 1, 5, 10 or 15 amino acid 'alterations from SEQ ID NO: 1'. When one incorporates up to 15 unspecified amino acid alterations 'from SEQ ID NO: 1' into any polypeptide immunogen that provides protective immunity against any strain of *S. aureus*, one cannot expect its relationship to SEQ ID NO: 1 to increase, or its protective immunity against *S. aureus* to increase. The written description for the novel aspects of the invention has to come either from Applicants' disclosure or from the state of the art at the time of the invention. The state of the art at the time of the invention appears to be silent on the protective capacity of sai-1 polypeptide referred to as SfbA by Taylor *et al. Mol. Microbiol.* 43: 1603-1614, 2002 (of record). Applicants submit that Taylor *et al.* fail to indicate that StbA can be successfully targeted to produce a protective immune response. Taylor's alleged teaching that the *stbA* coding region is well conserved among different *S. aureus* strains does not provide

adequate written description for the instantly claimed vast genus of isolated polypeptides consisting of an amino acid sequence with up to 1, 5, 10 or 15 amino acid alterations from SEQ ID NO: 1 (i.e., polypeptide variants) providing non-conserved protection against *S. aureus*, or conserved protection against different *S. aureus* strains. What are being claimed are not conserved *stbA* polypeptides, but altered polypeptides that are required to provide protective immunity against *S. aureus.*

It should be noted that the polypeptide claimed, for example, in claims 1, 2, 5-7, 19, 21-23 and 26-30 is not required to be SEQ ID NO: 1, but only required to be a polypeptide consisting of any amino acid sequence with up to 15, 5, 10 or 1 amino acid alterations 'from SEQ ID NO: 1'. The instant specification fails to disclose or identify one or more conformational or non-conformational protective epitopes from within an isolated polypeptide consisting of SEQ ID NO: 1 which provide protective immunity against one or more homologous or heterologous strains of *S. aureus* so that one of skill in the art could avoid making up to 15, 10 or 5 etc. alterations in or around such protective epitopes while producing the claimed altered, but protective polypeptide immunogens.

A review of the instant specification indicates that the animal model that is used in the instant specification to demonstrate protection is limited to a murine model that uses challenge infection with an unspecified strain of *Staphylococcus aureus* followed by monitoring of the survival of immunized and control mice. The survival results from two *in vivo* experiments are depicted in Figure 7. Mice were immunized with three injections of three 20 microgram doses of His-tagged SEQ ID NO: 1 mixed with 450 micrograms of aluminum hydroxyphosphate (AHP) adjuvant. The AHP-injected mice served as controls. The immunized and control mice were challenge-infected 35 days post-immunization with 8×10^8 CFU of *S. aureus*. Whether or not the strain of *S. aureus* used in the challenge infection was a homologous *S. aureus* strain from which the polypeptide was obtained, or a heterologous strain, a virulent strain, or a non-virulent commensal strain, coagulase-positive and coagulase-negative *S. aureus*; multiple drug-resistant or methicillin-resistant strain of *S. aureus* (MRSA), an enterotoxigenic *S. aureus*, a specific capsular type or phage type of *S. aureus*, or a non-typeable *S. aureus,* is not disclosed. This is particularly important because no significant protection could be demonstrated in immunized mice compared to AHP-injected control mice. Figure 7A demonstrates that three doses of the

polypeptide of SEQ ID NO: 3 (i.e., His-tagged SEQ ID NO: 1) administered to mice in aluminum hydroxyphosphate adjuvant (AHP) showed a poor or insignificant survival at day 10 post-challenge compared to the AHP adjuvant alone administered to control mice against intravenous challenge with an unspecified strain of *S. aureus*. Figure 7B illustrates that a polypeptide referred to merely as a 'vaccine' showed less than 60% survival compared to about 45% survival seen in mice immunized with the AHP adjuvant alone. Clearly, even with the single His-tagged SEQ ID NO: 1 polypeptide species, the protection conferred by the His-tagged SEQ ID NO: 1 or by the 'vaccine' does not appear to be significant compared that seen in mice immunized with AHP alone. No other isolated polypeptide species having 1, or up to 5, 10 or 20 amino acid alterations 'from SEQ ID NO: 1', or a polypeptide having 1% non-identity to SEQ ID NO: 1, with or without containing additional moieties at the amino or the carboxyl terminus of the polypeptide, and concurrently having the ability to provide protective immunity against one or more homologous or heterologous strains of *S. aureus,* were in Applicants' possession at the time of the invention. Clearly, as of the filing date sought, Applicants were not in possession full scope '*of the invention*'. Even if one considered the percent survival of immunized mice obtained in the instant specification as representing acceptable/significant protection against one unspecified strain of *S. aureus,* the description of one single species of a polypeptide immunogen consisting of a recombinant His-tagged SEQ ID NO: 1 does not provide adequate written description for the whole genus of polypeptide immunogen variant species having up to 15 amino acid alterations from SEQ ID NO: 1, or 1% non-identity to SEQ ID NO: 1. The description of a single polypeptide immunogen species within the recited genus may not be sufficient to support the patentability of the genus under 35 U.S.C § 112, first paragraph. See *University of California v. Eli Lilly & Co.*, 119 F.3d 15559, 1567, 43 USPQ2d 1398, 1405 (Fed. Cir. 1997). The specification does not disclose the precise structure of a representative number of altered polypeptide immunogen species in which an amino acid sequence comprising, consisting essentially of, or consisting of SEQ ID NO: 1 is altered to contain up to 15 amino acid alterations, or that are 1% non-identical to said SEQ ID NO: 1, wherein the polypeptide variants have the recited requisite protection function. The instant specification does not disclose which up to 15 amino acid residues within SEQ ID NO: 1, or which 1% of amino acid residues within SEQ ID NO: 1, should be altered in order to maintain the required biological function, i.e., the

capacity to provide the broadly recited protective immunity against *S. aureus*, or against an *S. aureus* that comprises a polypeptide of SEQ ID NO: 7. It should be noted that written description requires more than a mere statement that something is a part of the invention. Applicants have not described what domains, contiguous or discontiguous antigenic determinants, or conformational or non-conformational epitopes of the recited altered polypeptide immunogen are correlated with the required capacity to provide protective immunity against homologous or heterologous *S. aureus,* or against an *S. aureus* that comprises a polypeptide of SEQ ID NO: 7.

With respect to the written description requirement, while 'examples explicitly covering the full scope of the claim language' typically will not be required, a sufficient number of representative species must be included 'to demonstrate that the patentee possesses the full scope of the [claimed] invention'. *Lizardtech, Inc. v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1345, 76 USPQ2d 1724, 1732 (Fed. Cir. 2005). In the instant case, Applicants' specification does not contain a written description sufficient to show they had possession of the full scope of their claimed invention at the time the application was filed. The specification does not disclose a correlation between the function (i.e., capacity to provide protective immunity against *S. aureus*) and the precise structure, or conformational or non-conformational epitope(s) responsible for providing such protective immunity such that a skilled artisan would have known what alterations including deletions, substitutions, additions, or other variations could be made of the large number of alterations currently encompassed within the scope of the instant claims without losing the protective function. Clearly, Applicants did not describe the invention of the instant claims sufficiently to show that they had possession of the recited genus of altered polypeptide immunogens claimed. See e.g., *Noelle v. Lederman*, 355 F.3d 1343, 1348, 69 USPQ2d 1508, 1513 (Fed. Cir. 2004) ('invention is, for purposes of the written description inquiry, *whatever is now claimed*'). Applicants should note that written description requires more than a mere statement that something is a part of the invention and a reference to a potential method for isolating it. See *Fiers v. Revel*, 25 USPQ2d 1601, 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

As known in the art of immunology, an epitope or antigenic determinant can be linear, or conformational or discontinuous, and it interacts with its corresponding antibody based on the

three dimensional structure of both molecules and the fit between the molecules. See page 46 of Cruse *et al*., *Illustrated Dictionary of Immunology*, 2nd Edn., CRC Press, 2003, of record. The specification does not adequately describe or identify the *S. aureus*-specific, or *S. aureus* serotype-specific, non-serotype-specific or *S. aureus* strain-specific linear or conformational protective epitopes within SEQ ID NO: 1 or within an amino acid sequence with up to 15 amino acid alterations from SEQ ID NO: 1, or within an amino acid sequence that is 1% non-identical to SEQ ID NO: 1. This description is important because for an altered polypeptide to be protective, it has to minimally bind immunospecifically with a native polypeptide-specific antibody. A change of even a single amino acid residue is known to alter the folding of a polypeptide such that the antibody-binding region no longer recognizes the polypeptide. See right column on page 33 of Colman PM. *Research Immunol.* 145: 33-36, 1994, of record. It is recognized in the art that even a very conservative substitution may abolish binding. See first full paragraph on page 35 of Colman. Colman further taught that binding interactions could be considered less tolerant because the changes involved occur in what might be called the active site. See third full paragraph on page 35 of Colman. There is no disclosure as to which amino acids at which positions can be substituted such that one can obtain the altered polypeptide that has the required immunological specificity to be protective against any *S. aureus* or an *S. aureus* comprising SEQ ID NO: 7. This is important because the claimed altered polypeptide species have specific biological properties dictated by the structure of the polypeptide and the corresponding structure of the structural gene sequence which encodes it. There has to be some nexus between the structure of the altered polypeptide sequence and the function of such a polypeptide. However, the function cannot be predicted from the modification or alteration of the structure of the recited polypeptide. Applicants have not shown that up to 15 amino acid alterations within the polypeptide of SEQ ID NO: 1 would automatically predict the production of altered polypeptides having all the required functions. The specification fails to teach the structure or precise relevant identifying characteristics of a representative number of such altered polypeptide species sufficient to allow one skilled in the art to determine that inventors had possession of the invention as claimed. Applicants have not described which domains or regions of the recited polypeptide immunogen variants are correlated with the required capacity to provide such protective immunity. Applicants have not described which of SEQ ID NO: 1's amino acids can

be varied such that the polypeptide immunogen variant still maintains the capacity to provide such broad protective immunity. Without a convincing correlation between structure and function, the claims do little more than define the claimed invention by function. That is not sufficient to satisfy the written description requirement. *Ex parte Kubin*, 83 USPQ2d 1410 (Bd. Pat. Appl. & Int. 2007) citing *Eli Lilly*, 119 F.3d at 1568, 43 USPQ at 1406 ('definition by function ….. does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is'). The instant claims are viewed as not meeting the written description provision of 35 U.S.C. § 112, first paragraph.

Rejection(s) under 35 U.S.C. § 112, First Paragraph (New Matter)

16) Claim 26 and the dependent claims 27-32 are rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

New claim 26 includes the limitations: 'immunologically effective amount of a polypeptide immunogen consisting of an amino acid sequence with up to 15 amino acid alterations from SEQ ID NO: 1 ….. wherein said polypeptide immunogen provides protective immunity against a *S. aureus* comprising a polypeptide of SEQ ID NO: 7'. The polypeptide of the new dependent claims 27-32 are also required to provide protective immunity against a *S. aureus* comprising a polypeptide of SEQ ID NO: 7. Applicants state that last paragraph on page 4 of the specification provides SEQ ID NO: 7 as the *S. aureus* COL sai-sequence. Applicants further state that support for the ability of a 'SEQ ID NO: 1 related polypeptide' to provide protective immunity against *S. aureus* comprising a polypeptide of SEQ ID NO: 7 is provided at Example 1 of the present application; at pages 15-18; first paragraph of page 6; and Figures 1 and 3. Applicants contend that support for the ability of a 'SEQ ID NO: 1 related polypeptide' to provide protective immunity against a *S. aureus* comprising a polypeptide of SEQ ID NO: 7 is provided by the ability of the 'SEQ ID NO: 1 related polypeptide, SEQ ID NO: 3' to provide protective immunity. However, the polypeptide immunogen genus as recited in the new claim 26 is not limited to a His-tagged SEQ ID NO: 1 species, i.e., SEQ ID NO: 3, but encompasses many polypeptide immunogen species with up to 15 amino acid alterations from SEQ ID NO: 1

each having the ability to provide protective immunity against a *S. aureus* comprising a polypeptide of SEQ ID NO: 7. The above-identified parts of the specification do not provide support for the above-identified new limitations and for the now claimed scope of the claims. Therefore, the above-identified limitations in the amended claim(s) and the current scope of the claim are considered to be new matter. *In re Rasmussen*, 650 F2d 1212 (CCPA, 1981). New matter includes not only the addition of wholly unsupported subject matter but also, adding specific percentages or compounds after a broader original disclosure, or even omission of a step from a method. See M.P.E.P 608.04 to 608.04(c).

Applicants are respectfully requested to point to the descriptive support in the specification as filed, for the new limitation(s), or alternatively, remove the new matter from the claim(s). Applicants should specifically point out the support for any amendments made to the disclosure.

See MPEP 714.02 and 2163.06.

Rejection(s) under 35 U.S.C. § 102

17) The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office Action:

> A person shall be entitled to a patent unless –
> **(b)** the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18) Claims 5-7 are rejected under 35 U.S.C. § 102(b) as being anticipated by Foster *et al.* (WO 2003011899 A2, of record) ('899).

The ambiguous limitation in claim 5: '*comprising* a polypeptide *consisting of* an amino acid sequence with up to 15 amino acid alterations from SEQ ID NO: 1 ….. and one or more additional regions' is interpreted as permitting any amino acids to be present on either side of an amino acid sequence with up to 15 amino acid alterations from SEQ ID NO: 1.

Foster *et al.* ('899) disclosed an antigenic protein immunogen from *Staphylococcus aureus* and a vaccine comprising a dose of the single (i.e., substantially purified) protein, a carrier and an adjuvant for immunizing an animal against a disease or condition caused by *Staphylococcus aureus*. See claims 4, 7, 10 and 11; Table 8; and pages 10-12, 20 and 140. The protein consists of

the following amino acid sequence that is depicted on page 140 of Foster *et al.* ('899). The part of the amino acid sequence indicated below in bold consists of amino acids 3-260 of SEQ ID NO: 1, which at its carboxyl terminus has the additional sequence moiety, GLTSVDNFISTVAFATLALLGSLSLLLFKRKESK, which is expected to facilitate the stability of the polypeptide.

G1540

MTKHYLNSKYQSEQRSSAMKKITMGTASIILGSLVYIGADSQQVNAATEATNATNNQS**TQ VSQATSQPINFQVQKDGSSEKSHMDDYMQHPGKVIKQNNKYYFQTVLNNASFWKEYKFYN ANNQELATTVVNDNKKADTRTINVAVEPGYKSLTTKVH IVVPQINYNHRYTTHLE FEKAI PTLADAAKPNNVKPVQPKPAQPKTPTEQTKPVQPKVE KVKPTVTTTSKVEDNHSTKVVST DTTKDQTKTQTAHTVKTAQTAQEQNKVQTPVKDVATAKSESNNQAVSDNKSQQTNKVTKH NETPKQASKAKELPKT**GLTSVDNFISTVAFATLALLGSLSLLLFKRKESK

The polypeptide immunogen additionally comprises at its amino terminus the sequence moiety, MTKHYLNSKYQSEQRSSAMKKITMGTASIILGSLVYIGADSQQVNAATEATNATNNQS, which is expected to facilitate the stability of the polypeptide. The prior art protein thus lacks the MG dipeptide present at the carboxyl terminus of the instantly recited SEQ ID NO: 1 and consists of amino acids 3-260 of SEQ ID NO: 1, and therefore meets the limitation 'polypeptide .... consisting of an amino acid sequence with up to 15 amino acid alterations from SEQ ID NO: 1'. The prior art polypeptide consisting of the long amino acid sequence from SEQ ID NO: 1 is long enough to be immunogenic. The prior art polypeptide is identical in structure to the instantly claimed polypeptide immunogen, and therefore necessarily possesses all the intrinsic functions of the instantly claimed polypeptide immunogen including the capacity to provide protective immunity against *Staphylococcus aureus.*

Claims 5-7 are anticipated by Foster *et al.* ('899).

Remarks

19) Claims 1-7 and 20-32 stand rejected.

In claims 4, 25 and 32, since the limitation 'an amino acid of SEQ ID NO: 1' reads on a fragment of SEQ ID NO: 1, for clarity, it is suggested that Applicants replace the limitation with --the amino acid sequence of SEQ ID NO: 1--.

20) Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 C.F.R 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

21) Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted to the Office's Central Rightfax number 571-273-8300 via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week.

22) Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAG or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.Mov. Should you have questions on access to the Private PAA system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

23) Any inquiry concerning this communication or earlier communications from the Examiner should be directed to S. Devi, Ph.D., whose telephone number is (571) 272-0854. A message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 7.15 a.m. to 4.15 p.m. except one day each bi-week which would be disclosed on the Examiner's voice mail system.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Robert Mondesi, can be reached on (571) 272-0956.

/S. Devi/
Primary Examiner
AU 1645

January, 2009